ANDERS HUMLUM

Princeton University

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EDUCATION

Ph.D. Candidate in Economics, Princeton University *2014 – Present*

Dissertation: *"Essays on Automation and Labor Markets"*
Expected Completion Date: June 2020.

Dissertation Committee

Professor Stephen Redding (chair)	Professor Bo Honoré	Professor Alex Mas
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M.A. in Economics, Princeton University *2016*

B.Sc. in Economics, University of Copenhagen *2013*

RESEARCH FIELDS

Primary Fields: Labor Economics, Applied Microeconomics
Secondary Fields: Industrial Organization, International Trade

JOB MARKET PAPER

Robot Adoption and Labor Market Dynamics

Abstract: I use administrative data that link workers, firms, and robots in Denmark to study the distributional impact of industrial robots. I structurally estimate a dynamic model of the firm that rationalizes how firms select into and reorganize production around robot adoption. Using event studies, I find that firms expand output, lay off production workers, and hire tech workers when they adopt industrial robots. I embed the firm model into a dynamic general equilibrium framework that takes into account the ability of workers to reallocate across occupations in response to robots. To this end, I develop a fixed-point algorithm for solving the general equilibrium that features two-sided (firm and worker) heterogeneity and dynamics. I find that industrial robots have increased average real wages by 0.8 percent but have lowered real wages of production workers employed in manufacturing by 6 percent. Welfare losses from robots are concentrated on old production workers, as younger workers benefit from the option value of switching into tech and other occupations whose premiums rise as robots diffuse in the economy. Industrial robots can account for a quarter of the fall in the employment share of production workers and 8 percent of the rise in the employment share of tech workers since 1990. I use the estimated general equilibrium model to evaluate the dynamic incidence of a robot tax.

WORKING PAPERS

Retraining and Occupational Choice: Evidence from a Natural Experiment
Abstract: Rising pressures from automation and globalization have put retraining policies in the spotlight as a potential tool to help workers transition out of adversely impacted occupations. In this paper, I leverage a large reform in Denmark to provide causal evidence on the equilibrium impacts of retraining subsidies. Implemented in January 2011, the reform unexpectedly and temporarily eliminated all subsidies for more than 40 percent of the course activity of unemployed workers. Studying this policy experiment, I find that retraining activity react strongly to training subsidies. Secondly, I find clear evidence that retraining helps workers transition between occupations. Thirdly, I conclude that retraining subsidies can be an effective tool to help workers transition between occupations in the labor market. I organize the reduced-form evidence within a discrete choice model of training participation and occupational choice, and I show that the responses to the cutoff reform are well predicted by the model estimated only on pre-reform data. I estimate that retraining coursework can make up for 40 to 60 percent of occupational switching costs. Finally, I find evidence of limited labor market equilibrium effects of training subsidies.

Artificial Intelligence and the Returns to College Major (with Bjørn Meyer)
Abstract: We study the relationship between Artificial Intelligence (AI) technology and the returns to college majors. Using new micro data from Denmark, we rank college degrees according to whether their graduates work in AI firms. We then use an admission cutoff regression discontinuity (RD) design to estimate the causal earnings effects of pushing students towards AI. We document that AI intensity of college degree correlates with higher earnings, that the earnings premiums associated with AI are on the rise, and that AI cuts through traditional fields of study including the STEM degrees. Using the RD design, we find that earnings premiums from random assignment to higher AI intensity are larger than suggested by the correlation.

OTHER PUBLICATIONS

Globalization, Flexicurity and Adult Vocational Training in Denmark (with Jakob R. Munch). Published as first chapter in World Trade Organization book "Making Globalization More Inclusive: Lessons from Experience with Adjustment Policies" (October 2019).

TEACHING EXPERIENCE

Recipient of the 2018 Graduate School Teaching Award (Princeton's highest prize for TAs, Link)

Spring 2019	Econ 312, Econometrics: A Mathematical Approach, Princeton University Teaching assistant for Professor Michal Kolesàr
Fall 2018	WWS 507B, Quantitative Analysis for Policymakers, Princeton University Teaching assistant for Professor Adam Kapor
2017-2018	Econ 101, Introduction to Macroeconomics, Princeton University Teaching assistant for Professors Elizabeth Bogan and Kelly Noonan
Fall 2016	Econ 302, Economics of the Labor Market, Princeton University Teaching assistant for Professor Orley Ashenfelter

RESEARCH POSITIONS

Research Assistant, Department of Economics, Princeton University *2017-2018*
RA for Steve Redding and Bo Honoré

Research Assistant, Department of Economics, University of Copenhagen *2013-2014*
RA for Claus Thustrup Kreiner, David Dreyer Lassen, and Søren Leth-Petersen

Research Assistant, The Economic Council of the Labour Movement, Denmark *2010-2014*

HONORS AND AWARDS

Graduate School Teaching Award (Princeton's highest prize for Teaching Assistants, Link) *2018*
Graduate Student Teaching Award (within Department of Economics) *2018*
Erik Hoffmeyers Rejselegat *2018*
International Economics Section Summer Grant *2016, 2017, 2018, 2019*
Leschly Family Scholarship Fund *2015-2016, 2016-2017*
Industrial Relations Section Fellowship in Economics, Princeton University *2014-2019*
Denmark-America Foundation & Ramboll Group A/S, 100-year anniversity grant *2014*

RESEARCH GRANTS

Rockwool Foundation Research Unit Grant for project "Labor Market Effects of Automation, Offshoring and Multinationals" ($1,200,000; co-recipient)
Economic Policy Research Network grant for project "Retraining at Work" ($40,000; co-recipient)

PROFESSIONAL ACTIVITIES

Conference Presentations

2019: DAEiNA (Wisconsin-Madison); *2018*: Columbia Business School (roundtable discussion on AI and automation), DIEW (Aarhus), ADI (Copenhagen), DAEiNA (Princeton); *2017*: CAM/CEBI Workshop (Copenhagen), Krak's Fond (Copenhagen); *2016*: DAEiNA (Aarhus)

Other Activities

Board Member, Danish Academic Economists in North America 2016-2019
Organizer, Princeton International Trade Student Dinner Seminars 2017-2019

Updated on November 9, 2019.